# Attachment 8. Quality Assurance

The Palmdale Water District (PWD) will follow well-defined quality assurance and quality control measures. Each consultant retained by the PWD will have written Standard Operating Protocols (SOPs) for the relevant work to be performed.

- **Procedural assurances, such as review processes for quality of reports, data, and laboratory analyses.** Technical review of the work completed for the proposed project will be reviewed by a California Professional Engineer or a California Professional Geologist, as appropriate.
- **Personnel qualifications that may include professional registrations (such as a California Professional Geologist or Professional Engineer), certifications, and experience of persons performing and overseeing work to be performed.** Work performed for this project will be completed with the oversight of a licensed California Professional Geologist or California Professional Engineer. All staff assigned to this project will have the appropriate level of experience working in similar projects.
- **Stakeholder process will be used to ensure that the project scope is followed and that intermediate work products are reviewed in a timely fashion.** Several tasks include an interim deliverable/report that will be distributed to the stakeholders who will provide technical comments. These comments will be received and addressed, as appropriate, by the project team. This feedback on interim work products is critical to the success of this project.
- **Standardized methodologies to be used, such as construction standards, health and safety standards, laboratory analysis, or accepted soils classifications methods.**
    - The geophysical survey described in Task 4 and the environmental impact assessments described in Task 5 will require personnel to conduct various field investigations. Prior to the field investigation, task-specific health and safety plans will be prepared that meets state and federal requirements, and the field work will be conducted in accordance with the plans.
    - The geophysical survey will be conducted by qualified professionals and in general accordance with ASTM D6429 - 99(2011)e1 Standard Guide for Selecting Surface Geophysical Methods.
    - Preliminary designs will comply with Los Angeles County Flood Control District (LACFCD) requirements and other construction requirements as prescribed by the County and the US Army Corps of Engineers, and the ASCE Standard Guidelines for Artificial Recharge of Groundwater (ASCE/EWRI 34-01) and the AWWA standards for use with public drinking water systems.
    - CEQA analysis will be conducted during Task 5.1 to assess the ground surface and near-ground surface impacts of each LCGRRP alternative. The CEQA analyses will be conducted by qualified professionals in accordance with the CEQA Guidelines codified as Title 14 California Code of Regulations Section 15000 *et seq*.
- **Standardized analyses, such as statistical tests or ASTM/EPA analytical methodologies.** The laboratories will meet or exceed all guidelines specified by EPA in documents such as the Manual for Certification of Drinking Water Laboratories, EPA Information Collection Rule (ICR)

Guidance Manual, SWS4O Chapter One, and Quality Assurance Management System (QAMS) documents. The analytical laboratory will be Environmental Laboratory Accreditation Program (ELAP)-certified. All analysis will be conducted by experienced analytical chemists trained in the principles of quality assurance to monitor the laboratory program. Samples will be transmitted under chain-of-custody procedures by qualified personnel. These individuals are trained in the inspection of environmental samples to ensure that shipping conditions, containers, and preservatives are consistent with requirements for the requested analyses..

- **Quality requirements of material or computational methods, such as use of specific grades of building materials or use of specific, tested, and established models (or software).** The PWD will require the consultants retained to complete this investigation to use publically available and industry standard software and computational methodologies. Specific software and methods anticipated to be used herein include: SQL database; website design and hosting; geologic and geophysical data interpretation; ground and aerial survey procedures and interpretation; digital terrain modeling and grading plans; geographical information systems; mapping and groundwater flow and quality models.
- **Comparison and calibration of models with actual data to enhance accuracy of modeling results.** The USGS has completed a substantial groundwater flow and subsidence modeling effort in the Antelope Valley using the industry standard MODFLOW model and subsidence package. MODFLOW is the industry standard for the simulation of groundwater flow through porous media. The latest versions of MODFLOW (MODFLOW-2000 and MODFLOW-2005) include modules to simulate aquifer system compaction and land subsidence. The proposed feasibility investigation includes the adaptation of the USGS model, the development of an MT3D solute transport model and the application of these models to guide the project design and to assess the project feasibility. The following standards will be used to in the applications of groundwater models proposed in this feasibility investigation: Standard Guide for Comparing Ground-Water Flow Model Simulations to Site-Specific Information (ASTM, 1993); Standard Guide for Calibrating a Ground-Water Flow Model Application (ASTM, 1996); and Guidelines for Evaluating Ground-Water Flow Models (USGS, Reilly and Harbaugh, 2004).